

CLAIMS:

1. A method for establishing communication between a client node (14, 34, 36) and a server node in a heterogeneous IP network (300), said method comprising the steps of:
 - (a) making a request, by a user associated with said client, to a portal (18) in said network (300) for a list of server hostnames (51) capable of providing a desired content to said client;
 - (b) providing a first table (50) and a second table (40) from said portal (18) to said client responsive to said client request, said first table (50) including said list of server node hostnames (51);
 - (c) filtering at said client (14,34,36), said provided list of server hostnames (51) to exclude those server hostnames (51) with whom said client (14,34,36) cannot establish a communication;
 - (d) selecting by said user, a server hostname (51) from said filtered list of server hostnames (51);
 - (e) determining from said first table (50) if an IP address associated with said user selected server hostname (51) is resolvable via a domain name server (DNS);
 - (f) if said step (e) is satisfied, obtaining said associated IP address from said DNS; and
 - (g) if said step (e) is not satisfied, executing a protocol by said client (14,34,36) with said portal (18) to determine one or more default IP addresses of a server having said selected server's hostname (51).
2. The method of Claim 1, further including the step of establishing a communication with said selected server (19,20,22,26,30) using said associated IP address, following said step (f).
3. The method of Claim 2, wherein the step of establishing a communication with said selected server (19,20,22,26,30) further comprises the steps of:
 - (1) determining if an IP version of a first returned IP address from said DNS is the same version as an IP version of said client (14,34,36);
 - (2) if said step (1) is not satisfied, obtaining a next returned IP address from

said DNS and repeating said step (1);

(3) if said step (1) is satisfied, determining if said IP version of said first returned IP address and said IP version of said client (14,34,36) are IPv6 versions;

(4) if said step (3) is satisfied, determining if said IPv6 versions are 6to4 addresses; and

(5) if said step (4) is satisfied, establishing a communication with said selected server (19,20,22,26,30) using said IPv6 protocol and automatic tunneling.

4. The method of Claim 3, wherein if said step (4) is not satisfied, establishing a communication with said selected server (19,20,22,26,30) using an IPv6 protocol and a tunneling method having a relay router as an endpoint address.

5. The method of Claim 3, wherein if said step (3) is not satisfied, establishing a communication with said selected server (19,20,22,26,30) using an IPv4 protocol.

6. The method of Claim 1, further including the step of establishing a communication with said selected server (19,20,22,26,30) using said associated IP address, following said step (g).

7. The method of Claim 6, wherein the step of establishing a communication with said selected server (19,20,22,26,30) further comprises the steps of:

(1) determining if an IP version of a first returned IP address from said second table (40) is the same version as an IP version of said client (14,34,36);

(2) if said step (1) is not satisfied, obtaining a next returned IP address from said second table (40) and repeating said step (1);

(3) if said step (1) is satisfied, determining if said IP version of said first returned IP address and said IP version of said client (14,34,36) are IPv6 versions;

(4) if said step (3) is satisfied, determining if said IPv6 versions are 6to4 addresses; and

(5) if said step (4) is satisfied, establishing a communication with said selected server (19,20,22,26,30) using said IPv6 protocol and automatic tunneling.

8. The method of Claim 7, wherein if said step (4) is not satisfied, establishing a communication with said selected server (19,20,22,26,30) using an IPv6 protocol and a tunneling to a relay router address obtained from said second table (40) as an endpoint address.
- 5 9. The method of Claim 7, wherein if said step (3) is not satisfied, establishing a communication with said selected server (19,20,22,26,30) using an IPv4 protocol.
- 10 10. The method of Claim 1, wherein said determining step further comprises performing a lookup in said first table (50) by said client (14,34,36) using said user selected server hostname (51) as an index, to obtain a record value indicating the resolvability status of the selected server's hostname (51) via said DNS.
- 15 11. The method of Claim 1, wherein said step (g) further comprises performing by said client (14,34,36), a lookup in said second table (40) using said user selected server's hostname (51) as an index, to determine one or more default IP addresses (43) associated with said user selected server's hostname (51) for establishing a communication with said selected server (19,20,22,26,30).
- 20 12. The method of Claim 1, further including, prior to said step (a), the step of populating said first table (50) at said vendor portal (18) with a plurality of records, each of the records comprising:
- 25 said server hostname (51) of a server in said network (300) capable of providing said desired content to said client (14,34,36);
- an IP address version (53) associated with said server hostname (51); and
- an indicator (55) of whether said server hostname (51) is resolvable via a DNS server in said network (300).
- 30 13. The method of Claim 8, wherein said populating step is performed during a registration stage prior to the operation of said IP network (300).

14. The method of Claim 1, further including, prior to said step (a), the step of populating said second table (40) at said vendor portal (18) with a plurality of records, each of the records comprising:

5 said server hostname (41) of a server in said network (300) capable of providing said desired content to said client (14,34,36);
 a default IP address (43) associated with said server hostname (41); and
 a relay router address (45).

15. The method of Claim 14, wherein said populating step is performed during
10 a registration stage prior to the operation of said IP network (300).

16. The method of Claim 1, wherein said step (c) further comprises the steps of:

15 comparing an IP address version of said client (14,34,36) with one or more IP address versions (53) associated with said server hostname (51) to determine from said comparison if said compared IP address versions are capable of establishing a communication between said client (14,34,36) and said server;

 if said comparison step is satisfied, retaining said server hostname (51) and associated record information in said filtered list; and

20 otherwise deleting said server hostname (51) and said associated information from said filtered list.

17. A system (300) for establishing communication between a client (14,34,36) node (14,34,36) and a server node (19,20,22,26,30) in an heterogeneous IP network (300),
25 said system comprising:

 means for making a request, by a user associated with said client (14,34,36), to a portal (18) in said network (300) for a list of server hostnames capable of providing a desired content to said client (14,34,36);

30 means for providing a first table (50) and a second table (40) from said portal (18) to said client (14,34,36) responsive to said client request, said first table (50) including said list of server node hostnames (51);

 means for filtering at said client (14,34,36), said provided list of server hostnames

(51) to exclude those server hostnames (51) with whom said client (14,34,36) cannot establish a communication;

means for selecting by said user, a server hostname (51) from said filtered list of server hostnames;

5 means for determining from said first table (50) if an IP address associated with said user selected server's hostname (51) is resolvable via a domain name server (DNS);

means for obtaining said associated IP address from said DNS if said means for determining is satisfied; and

10 means for executing a protocol by said client (14,34,36) with said portal (18) to determine one or more default IP addresses (43) of a server (19,20,22,26,30) having said selected server hostname (51) if said means for determining is not satisfied.

18. The system (300) of Claim 17, further comprising means for establishing a
15 communication with said selected server (19,20,22,26,30) using said associated IP address when said means for determining is satisfied.

19. The system (300) of Claim (18), wherein said means for establishing a
20 communication with said selected server (19,20,22,26,30) using said associated IP address further comprises:

first means for determining if an IP version of a first returned IP address from said DNS is the same version as an IP version of said client (14,34,36);

25 means for obtaining a next returned IP address from said DNS and repeating determining means if said determining means is not satisfied;

second means for determining if said IP version of said first returned IP address and said IP version of said client (14,34,36) are IPv6 versions if said first determining means is satisfied;

30 third means for determining if said IPv6 versions are 6to4 addresses if said means for determining if said second determining means is satisfied; and

means for establishing a communication with said selected server (19,20,22,26,30) using said IPv6 protocol and automatic tunneling if said third means

is satisfied.

20. The system (300) of Claim 19, wherein if said third means for determining is not satisfied establishing a communication with said selected server (19,20,22,26,30) using an IPv6 protocol and a tunneling method having a relay router as an endpoint address.

21. The system (300) of Claim 19, wherein if said second means for determining is not satisfied establishing a communication with said selected server (19,20,22,26,30) using an IPv4 protocol.

22. The system (300) of Claim 17, further comprising means for establishing a communication with said selected server (19,20,22,26,30) using said associated IP address when said means for determining is not satisfied.

23. The system (300) of Claim 22, wherein said means for establishing a communication further comprises:

first means for determining if an IP version of a first returned IP address from said second table (40) is the same version as an IP version of said client (14,34,36);

means for obtaining a next returned IP address from said second table (40) and repeating said first means for determining if said first means for determining is not satisfied;

second means for determining if said IP version of said first returned IP address and said IP version of said client (14,34,36) are IPv6 versions if said first means for determining is satisfied;

third means for determining if said IPv6 versions are 6to4 addresses if said second means for determining is satisfied; and

means for establishing a communication with said selected server (19,20,22,26,30) using said IPv6 protocol and automatic tunneling if said third means for determining is satisfied.

24. The system (300) of Claim 23, wherein if said third means for determining is not satisfied establishing a communication with said selected server (19,20,22,26,30) using an IPv6 protocol and a tunneling method having a relay router as an endpoint address.

5

25. The system (300) of Claim 26, wherein if said second means for determining is not satisfied establishing a communication with said selected server (19,20,22,26,30) using an IPv4 protocol.

10

26. The system (300) of Claim 17, wherein said first table (50) is resident at said vendor portal (18) and is comprised of a plurality of records, each of the records further comprising:

said server hostname (51) of a server in said network (300) capable of providing said desired content to said client (14,34,36);

15

an IP address version associated with said server hostname (51); and

an indicator of whether said server hostname (51) is resolvable via a DNS server in said network (300).

20

27. The system (300) of Claim 17, wherein said second table (40) is resident at said vendor portal (18) and is comprised of a plurality of records, each of the records further comprising:

said server hostname (41) of a server in said network (300) capable of providing said desired content to said client (14,34,36);

a default IP address (43) associated with said server hostname (41); and

25

a relay router address (45).